

What is claimed is:

1. A pattern retrieving method for use with a pattern retrieval apparatus connected to a plurality of terminal devices through a network,
5 comprising:

receiving a retrieval condition, transmitted from each of the plurality of terminal devices together with terminal device information for
10 designation of each of the terminal devices, including a retrieval pattern and a retrieval expression for retrieval of data to be searched;

15 storing the received retrieval condition and the terminal device information in a retrieval condition buffer;

determining whether or not a preceding retrieving process is being performed;

when it is determined that the preceding retrieving process is not being performed,
20 generating a retrieval pattern variable table in which a retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other if there are two or more identical retrieval patterns in the retrieval
25 patterns stored in the retrieval condition buffer,

excluding retrieval patterns other than one retrieval pattern;

generating a retrieval request expression variable table in which the retrieval request expression indicating the retrieval pattern using the first variable and a second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device information stored in the retrieval condition buffer unit, and the generated retrieval pattern variable table;

extracting a retrieval result matching the retrieval condition transmitted from each of the plurality of terminal devices by searching the retrieval target database storing the data to be searched according to the generated retrieval request expression variable table; and

transmitting the extracted retrieval result to each of the plurality of terminal devices.

2. The method according to claim 1, wherein
said retrieval condition buffer stores the
retrieval condition until it is determined that a
retrieving process is completed.

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3. The method according to claim 1, wherein
said retrieval condition buffer stores the
retrieval condition until a predetermined time is
reached or a predetermined capacity is filled.

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4. The method according to claim 1, wherein
said retrieval simultaneously retrieves a
plurality of retrieval patterns.

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5. The method according to claim 1, wherein
said retrieval is performed in one of an Aho-
Corasick (AC) method, an Expanded-Boyer-Moore (EBM)
method, and a Shinohara-Arikawa (SA) method.

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6. A pattern retrieval apparatus connected to a
plurality of terminal devices through a network,
comprising:

 a retrieval target data storage unit storing
 data to be searched;

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 a retrieval condition reception unit receiving

a retrieval condition, transmitted from each of the plurality of terminal devices together with the terminal device information for designation of each of the terminal devices, including a retrieval 5 pattern and a retrieval expression for retrieval of the data to be searched;

a retrieval condition buffer unit storing the retrieval condition and the terminal device information received by said retrieval condition 10 reception unit;

a retrieving process determination unit determining whether or not a preceding retrieving process is being performed;

a retrieval pattern variable table generation 15 unit generating, when the retrieving process determination unit determines that the preceding retrieving process is not being performed, a retrieval pattern variable table in which a retrieval pattern and a first variable having the 20 retrieval pattern as a value are associated with each other, if there are two or more identical retrieval patterns in the retrieval patterns stored in said retrieval condition buffer units, excluding the retrieval patterns other than one retrieval 25 pattern;

a retrieval request expression variable table generation unit generating a retrieval request expression variable table in which the retrieval request expression indicating the retrieval pattern 5 using the first variable and the second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the terminal device information and the retrieval expression using the 10 second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device information stored in said retrieval condition buffer unit, and the retrieval 15 pattern variable table generated by said retrieval pattern variable table generation unit;

a retrieval unit extracting a retrieval result matching the retrieval condition transmitted from each of the plurality of terminal devices by 20 searching said retrieval target data storage unit according to the retrieval request expression variable table generated by said retrieval request expression variable table generation unit; and

a transmission unit transmitting the retrieval 25 result extracted by said retrieval unit to each of

the plurality of terminal devices.

7. The apparatus according to claim 6, wherein
5 said retrieval condition buffer unit stores
the retrieval condition until said retrieving
process determination unit determines that a
retrieving process is completed.

8. The apparatus according to claim 6, wherein
10 said retrieval condition buffer stores the
retrieval condition until a predetermined time is
reached or a predetermined capacity is filled.

9. The apparatus according to claim 6, wherein
15 said retrieval unit simultaneously retrieves a
plurality of retrieval patterns.

10. The apparatus according to claim 6, wherein
 said retrieval unit is one of an Aho-Corasick
20 (AC) method, an Expanded-Boyer-Moore (EBM) method,
and a Shinohara-Arikawa (SA) method.

11. A computer-readable storage medium storing a
program code of a pattern retrieval program
25 executed by a pattern retrieval apparatus connected

to a plurality of terminal devices through a network, said program comprising:

receiving a retrieval condition, transmitted from each of the plurality of terminal devices 5 together with terminal device information for designation of each of the terminal devices, including a retrieval pattern and a retrieval expression for retrieval of data to be searched;

10 storing the received retrieval condition and the terminal device information in a retrieval condition buffer;

determining whether or not a preceding retrieving process is being performed;

15 when it is determined that the preceding retrieving process is not being performed, generating a retrieval pattern variable table in which a retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other if there are two or more 20 identical retrieval patterns in the retrieval patterns stored in the retrieval condition buffer, excluding retrieval patterns other than one retrieval pattern;

25 generating a retrieval request expression variable table in which the retrieval request

expression indicating the retrieval pattern using the first variable and a second variable having the retrieval request expression as a value are associated, and the retrieval request expression 5 indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device 10 information stored in the retrieval condition buffer unit, and the generated retrieval pattern variable table;

extracting a retrieval result matching the retrieval condition transmitted from each of the 15 plurality of terminal devices by searching the retrieval target database storing the data to be searched according to the generated retrieval request expression variable table; and

transmitting the extracted retrieval result to 20 each of the plurality of terminal devices.

12. The storage medium according to claim 11, wherein

said retrieval condition buffer stores the 25 retrieval condition until it is determined that a

retrieving process is completed.

13. The storage medium according to claim 11,
wherein

5 said retrieval condition buffer stores the
retrieval condition until a predetermined time is
reached or a predetermined capacity is filled.

14. The storage medium according to claim 11,
10 wherein

 said retrieval simultaneously retrieves a
plurality of retrieval patterns.

15. The storage medium according to claim 11,
15 wherein

 said retrieval is performed in one of an Aho-
Corasick (AC) method, an Expanded-Boyer-Moore (EBM)
method, and a Shinohara-Arikawa (SA) method.

20 16. A pattern retrieval system in which a
plurality of terminal devices and a pattern
retrieval apparatus are connected through a network,
wherein:

 each of said plurality of terminal devices
25 comprises:

a terminal device side transmission unit transmitting a retrieval condition containing a retrieval pattern for retrieval of data to be searched and a retrieval pattern together with 5 terminal device information for designating each terminal device;

said pattern retrieval system comprises:

a retrieval target data storage unit storing data to be searched;

10 a retrieval condition reception unit receiving a retrieval condition, transmitted from each terminal device side transmission unit of said plurality of terminal devices together with the terminal device information for designation of each 15 of the terminal devices, including a retrieval pattern and a retrieval expression for retrieval of the data to be searched;

a retrieval condition buffer unit storing the retrieval condition and the terminal 20 device information received by said retrieval condition reception unit;

a retrieving process determination unit determining whether or not a preceding retrieving process is being performed;

25 a retrieval pattern variable table

generation unit generating, when the retrieving process determination unit determines that the preceding retrieving process is not being performed, a retrieval pattern variable table in which a 5 retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other, if there are two or more identical retrieval patterns in the retrieval patterns stored in said retrieval condition buffer units, excluding 10 the retrieval patterns other than one retrieval pattern;

 a retrieval request expression variable table generation unit generating a retrieval request expression variable table in which the 15 retrieval request expression indicating the retrieval pattern using the first variable and the second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the 20 terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device information 25 stored in said retrieval condition buffer unit, and

the retrieval pattern variable table generated by said retrieval pattern variable table generation unit;

5 a retrieval unit extracting a retrieval result matching the retrieval condition transmitted from each of the plurality of terminal devices by searching said retrieval target data storage unit according to the retrieval request expression variable table generated by said retrieval request 10 expression variable table generation unit; and

a transmission unit transmitting the retrieval result extracted by said retrieval unit to each of the plurality of terminal devices; and

each of said plurality of terminal devices 15 further comprises

a terminal device side reception unit receiving the result transmitted by said transmission unit.

20 17. A pattern retrieval program executed by a pattern retrieval apparatus connected to a plurality of terminal devices through a network, comprising:

receiving a retrieval condition, transmitted 25 from each of the plurality of terminal devices

together with terminal device information for designation of each of the terminal devices, including a retrieval pattern and a retrieval expression for retrieval of data to be searched;

5 storing the received retrieval condition and the terminal device information in a retrieval condition buffer;

 determining whether or not a preceding retrieving process is being performed;

10 when it is determined that the preceding retrieving process is not being performed, generating a retrieval pattern variable table in which a retrieval pattern and a first variable having the retrieval pattern as a value are 15 associated with each other if there are two or more identical retrieval patterns in the retrieval patterns stored in the retrieval condition buffer, excluding retrieval patterns other than one retrieval pattern;

20 generating a retrieval request expression variable table in which the retrieval request expression indicating the retrieval pattern using the first variable and a second variable having the retrieval request expression as a value are 25 associated, and the retrieval request expression

indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the 5 retrieval expression and the terminal device information stored in the retrieval condition buffer unit, and the generated retrieval pattern variable table;

extracting a retrieval result matching the 10 retrieval condition transmitted from each of the plurality of terminal devices by searching the retrieval target database storing the data to be searched according to the generated retrieval request expression variable table; and

15 transmitting the extracted retrieval result to each of the plurality of terminal devices.

18. The pattern retrieval program according to claim 17, wherein

20 said retrieval condition buffer stores the retrieval condition until it is determined that a retrieving process is completed.

19. The pattern retrieval program according to 25 claim 17, wherein

said retrieval condition buffer stores the retrieval condition until a predetermined time is reached or a predetermined capacity is filled.

5 20. The pattern retrieval program according to claim 17, wherein

 said retrieval simultaneously retrieves a plurality of retrieval patterns.

10 21. The pattern retrieval program according to claim 17, wherein

 said retrieval is performed in one of an Aho-Corasick (AC) method, an Expanded-Boyer-Moore (EBM) method, and a Shinohara-Arikawa (SA) method.

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22. A pattern retrieval apparatus connected to a plurality of terminal devices through a network, comprising:

 retrieval target data storage means for
20 storing data to be searched;

 retrieval condition reception means for receiving a retrieval condition, transmitted from each of the plurality of terminal devices together with the terminal device information for
25 designation of each of the terminal devices,

including a retrieval pattern and a retrieval expression for retrieval of the data to be searched;

retrieval condition buffer means for storing
5 the retrieval condition and the terminal device information received by said retrieval condition reception means;

retrieving process determination means for determining whether or not a preceding retrieving
10 process is being performed;

retrieval pattern variable table generation means for generating, when said retrieving process determination means determines that the preceding retrieving process is not being performed, a
15 retrieval pattern variable table in which a retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other, if there are two or more identical retrieving patterns in the retrieval patterns stored
20 in said retrieval condition buffer means, excluding the retrieval patterns other than one retrieval pattern;

retrieval request expression variable table generation means for generating a retrieval request
25 expression variable table in which the retrieval

request expression indicating the retrieval pattern using the first variable and the second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression and the terminal device information stored in said retrieval condition buffer means, and the retrieval pattern variable table generated by said retrieval pattern variable table generation means;

retrieval means for extracting a retrieval result matching the retrieval condition transmitted from each of the plurality of terminal devices by searching said retrieval target data storage means according to the retrieval request expression variable table generated by said retrieval request expression variable table generation means; and

transmission means for transmitting the retrieval result extracted by said retrieval means to each of the plurality of terminal devices.